

Peri-articular histiocytic sarcoma in Bernese Mountain Dogs: a retrospective investigation of the prevalence of this tumour in association with previously diseased joints.

L. van Kuijk¹, K. van Ginkel², J.P. de Vos¹, M. Brearley³, J. Butinar⁴, I. Gielen⁵, E. van Garderen⁶, and P.S. Verhoeven².

¹ De Ottenhorst, Veterinary Oncology Referral Centre, van Diemenstraat 83, 4535 AR Terneuzen, The Netherlands.

² Roosevelt Academy, P.O. Box 94, 4330 AB Middelburg, The Netherlands.

³ Queen's Veterinary School Hospital, University of Cambridge, Maddingley Road, Cambridge CB3 0ES, United Kingdom

⁴ Animal Hospital Postojna, Cesta v Staro vas 14, 6230 Postojna, Slovenia

⁵ Department of Medical Imaging, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820 Merelbeke, Belgium

⁶ Laboratory for Pathology and Histology, Animal Health Service, P.O. Box 9, 7400 AA Deventer, The Netherlands

E-mail: info@ottenhorst.nl

Introduction

Histiocytic sarcoma complex is commonly found in Bernese Mountain Dogs (BMD), and a genetic association has been unravelled in this breed. Peri-articular histiocytic sarcoma (PAHS) is a sub-entity of this histiocytic sarcoma complex. The hypothesis of this study is that PAHS in BMD will be more frequently encountered around previously diseased joints compared to normal joints.

Material and methods

Data were compiled from a European internet questionnaire (www.bmdhealthsurvey.eu), and the medical records of two pathology labs. Statistical analysis was performed through Chi-square tests and logistic regression analysis, with significant results assumed at $p < 0.05$. Effect Size was analyzed by means of Nagelkerke R^2 .

Results

Data from 1550 BMD were obtained, of which 697 had a completed questionnaire and were used for statistical analysis. 22 BMD were identified with PAHS. A significant association between previous joint trauma and the development of PAHS around the same joint was demonstrated for the left elbow ($p=0.026$), right elbow ($p=0.035$), left stifle ($p=0.018$), and right stifle ($p=0.023$). Effect Sizes (R_N^2) for these joints were 0.621, 0.651, 0.721, and 0.499 respectively.

Conclusion

Significant association in combination with reasonably high Effect Sizes indicate a causal relation of previous joint trauma and the development of PAHS in elbow and stifle joints of European BMD. However, studies with larger numbers of dogs with PAHS should be performed to make this conclusion more powerful. Future investigations on PAHS carcinogenesis, e.g. combining genetic predisposition and chronic arthritis, may lead to the development of early-detection programs for PAHS in BMD with known joint pathology.